November 11: More on binding

1 Coreference and binding

QR and LF afford a rich theory of binding, which seems to make basically good predictions down the line. Some reminders:

1. Quantificational binding: *every woman$_i$ who married her$_i$ prom date was at the reunion* [QR, PA, and apparatus for traces and pronouns predicts possible].

2. Roofing: *every candidate$_i$ submitted two papers she$_i$ wrote* [inverse-scope reading correctly predicted ungrammatical since it brings the object QP outside the scope of the subject QP].[1]

3. Binding requires scope: *a member of each committee$_i$ voted to abolish it$_i$* [surface-scope reading correctly predicted ungrammatical since *each committee* can't scope within the subject QP and over the object pronoun].

Semantic binding: α sem-binds β iff α's trace and β co-indexed and c-commanded by a co-indexed abstraction operator.

Coreference without binding:

(1) Barack$_i$ came in. He$_i$ sat down.

(2) Everyone who thinks Clinton$_i$ deserves to win will vote for her$_i$.

1.1 The role of surface c-command

This picture is fairly unconstrained. However, semantic binding is often assumed to be more tightly regulated by the grammar. In particular, folks often assume that binding is possible only when **surface c-command** obtains.

Syntactic binding: α syn-binds β iff α and β are co-indexed, α is in an A-position and c-commands β (and α doesn't c-command any other expression in an A-position that c-commands and is co-indexed with β).

Binding Principle: There is syntactic binding iff there is semantic binding.

One consequence: a lot more sem-binding than you might have thought. In the following sentence, *Bill$_4$* syn-binds *he$_4$*, which in turn syn-binds *his$_4$*. Since, per the Binding Principle, there is a one-to-one correspondence between instances of syn- and sem- binding, we'll need a lot more QR and sem-binding than is strictly necessary to assign this string the correct interpretation.

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[1] Those of you who went to Chris Kennedy's talk today might think about what sorts of predictions his theory makes about cases like these.

(3) Bill$_4$ swore he$_4$'d seen a mosquito on his$_4$ arm.

Of more interest for us today is another prediction, namely that sem-binding is possible only if there is surface c-command! Importantly, the surface c-command constraint really doesn't fall out of the theory without the Binding Principle—though people often talk as if it does.

Why think this? Weak crossover (WCO):

(4) *[The shark next to him$_i$] attacked every diver$_i$.

(5) *[His$_i$ mother] praised no man$_i$.

Though there is no *semantic reason* that LFs deriving these interpretations should be ruled out, they are correctly ruled out by the Binding Principle: since no surface c-command obtains

Notice that the Binding Principle imposes a *purely hierarchical* constraint on binding. Precedence's got nothin' to do with it. But can this be correct?

(6) [[Every boy$_i$]'s mother] praises him$_i$.

(7) [[[[Every boy$_i$]'s mother]'s aunt]'s granddaughter] praised him$_i$.

(8) John [$_?$ introduced every man here$_i$] to his$_i$ wife.

(9) We will [$_?$ sell no wine$_i$] before its$_i$ time.

(10) I asked to [borrow each book$_i$] before you asked to borrow it$_i$.

Seems to me there's ample reason to doubt that hierarchy really matters for quantificational binding. See Barker 2013 ("Quantificational Binding Does Not Require C-Command") for a terrific and in-depth discussion.

It's difficult to test the other prong of the Binding Principle with respect to precedence—namely what happens when there is no precedence but there is c-command. Would we could!

1.2 Binding and the Binding Theory

Syntactic binding is the sort of binding relevant for stating principles of the Binding Theory:

Condition A: reflexives must be locally syn-bound.

Condition B: non-reflexive pronouns mustn't be locally syn-bound.

Condition C: referring expressions mustn't be syn-bound.

But the situation is more complicated than these principles let on. Suppose we had an assignment function g such that $g(2) =$ Simon. Then the following LFs derive illicit interpretations, even though they do not disrespect the principles of the Binding Theory. This is known as the problem of **"accidental" coreference**.

(11) He$_2$ praised Simon.

(12) Simon praised him$_2$.

Reinhart proposes: if there's an LF with binding, you have to use it. Thus, both of the above are impossible because there is an LF of the form [Simon [2 t_2 praised himself$_2$]] with binding and the same meaning (which corresponds, of course, to the grammatical surface string *Simon praised himself*).

2 Covert binding

2.1 Ellipsis

Coreference *or* binding? Sometimes hard to pick apart or imagine what the difference would amount to.

With or without the Binding Principle, we predict that sentences like *John likes his mom* have multiple LFs with the same semantic upshot. One with binding and one with simple coreference. With the Binding Principle, we

Recall evidence for some notion of identity in ellipsis:

(13) I went to the bank, and then you did.

(14) I like him, but you don't.

(15) I gave a book to every child, and Bill did too.

A slightly more precise characterization of the **Condition on Ellipsis**: a constituent can be deleted (i.e. unpronounced at PF) iff there is an LF with the same interpretation.

Exercise: see how this applies to previous examples (esp quantificational ones! think: VP-internal subjects!).

Datum: the following is ambiguous! Can either mean that Bill likes John's mom, or that Bill likes *Bill*'s mom.

(16) John$_i$ likes his$_i$ mom, but Bill$_j$ really doesn't ~~like his$_{i/j}$ mom~~.
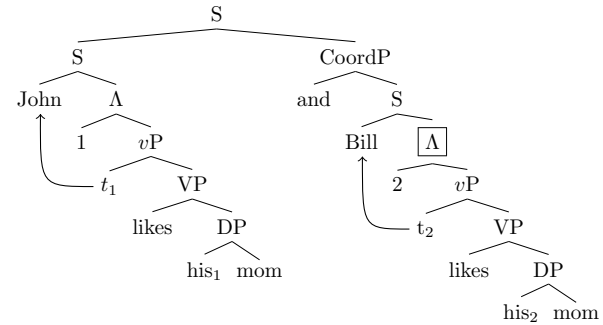

Figure 1: LF for the sloppy reading of *John likes his mom, and Bill does too.*
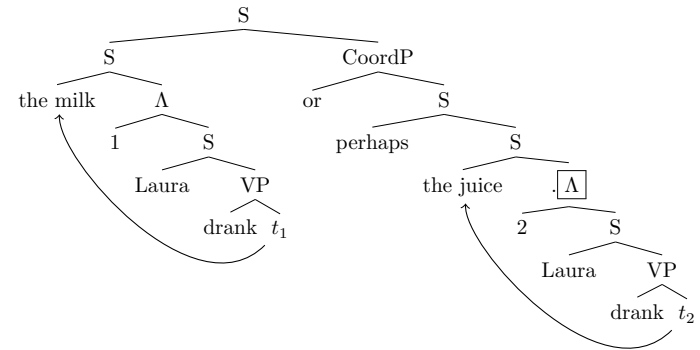

Figure 2: LF for the sloppy reading of *Laura drank the milk, or perhaps the juice.*

How can this be so, given the Condition on Ellipsis? In fact, our theory predicts exactly this, and it provides evidence that binding happens in these cases, even if it doesn't need to in order to derive the correct interpretation. See Figure 1.

Bare argument ellipsis example. Again predicted possible. See Figure 2 (ignoring VP-internal subjects).

(17) Laura drank the milk, or perhaps the juice.

An over-generation worry:

(18) *On Roman$_i$'s birthday, Philipp went to his$_i$ office. Marcel$_j$ didn't ~~go to his$_j$~~ office.

HK: "Unfortunately, however, there is another possible LF which we do not yet exclude and which also expresses one of the unavailable readings.". – Namely, an LF where the overt and elided pronouns are accidentally co-indexed.

Solution: "No LF representation (for a sentence or multisentential text) must contain both bound occurrences and free occurrences of the same index."

What about strict readings? Are they inconsistent with the preference for binding?

2.2 Deaccenting

Foregoing focal stress:

(19) John went to the park, and then BILL *went to the park*.

(20) John introduced a dean to every professor, and then MARY *introduced a dean to every professor*.

Seems to require that varying the focus leads to something semantically identical with an antecedent. That is, just like in elliptical constructions, ambiguity doesn't multiply in deaccenting constructions.

(21) #John went to the park, and then BILL *went to the zoo*.

There is an additional subtlety here not present in ellipsis. Deaccenting is acceptable to the extent that we can accommodate an entailment relationship between the antecedent and alternative:

(22) First Bill called John a Republican, and then SUE *insulted him*.

Again, we see a need for binding.

(23) John said Sam likes Bill, and then MARY said *he likes him*.

Compare:

(24) #John thinks Bill's smart, but *he* DOESN'T *think Sam's smart*.

(25) #John said he likes Bill, and then MARY *said she likes Sam*.

2.3 *Only* quantification

The following is ambiguous. It can either mean that John was the only person who was asked a question that John understood (a rather unlikely set of truth conditions), or that John was the only x such that x was asked a question that x understood.

(26) Only John was asked a question he understood.

Again, we can tie this to a difference in LFs, quite analogously to how the strict-sloppy ambiguity was derived.

2.4 Predictions

When scope (that is, LF c-command) is impossible, binding and therefore sloppy identity should be impossible.

Good: WCO. The following is claimed to lack a sloppy interpretation:

(27) His father spoils Roman, but not Felix.

Good-ish(?): reflexives. Binding Theory requires syntactic binding. In turn, this requires semantic binding. Therefore, prediction is only sloppy identity is possible. (Something similar goes for many-clauses.)

(28) John cites himself often, but Bill doesn't.

Bad: rebinding predicted impossible:

(29) $Bill_i$ says Mary likes him_i. $John_j$ says she doesn't ~~like him_j~~.

Bad: c-command incorrectly predicted necessary. Even if we ditch the syn-sem-binding link, there's a problem with scope island cases such as (31), where it seems impossible to even establish LF c-command.

(30) John's mom pays for him. Bill's mom doesn't.

(31) The cop who arrested John insulted him. The cop who arrested Bill didn't.

(32) A: I heard that Bill's mom thinks he's too dumb to compete.
B: No, only $JOHN_i$'s mom thinks he_i's too dumb to compete.

Predicts lexical material in ellipsis site should be a non-starter for sloppy readings (since sloppy ellipsis requires binding). This seems tough to square with other data:

(33) If you forgot your visa, you can get a new one ~~visa~~ at the embassy. If you forgot your passport, you probably can't ~~get a new passport at the embassy~~.

(34) When John has to cook, he doesn't want to ~~cook~~. When he has to clean, he doesn't ~~want to clean~~ either.